Contents of volume 28

No. 1 (pp 1–108) published February 12, 1988
No. 2 (pp 109–214) published March 28, 1988
No. 3 (pp 215–318) published April 20, 1988
No. 4/5 (pp 319–514) published May 20, 1988
No. 6 (pp 515–616) published June 27, 1988

Biotechnology

Andorn N, Zhang Y-L, Sekura RD, Shiloach J: Large scale cultivation of *Bordetella pertussis* in submerged culture for production of pertussis toxin 356

Aono R: Cultivation conditions for extracellular production of penicillinase by *Escherichia coli* carrying pEAP31 on a semi-large scale 414

Bibal B, Goma G, Vayssier Y, Pareilleux A: Influence of pH, lactose and lactic acid on the growth of *Streptococcus cremoris:* a kinetic study 340

Bronnenmeier K, Staudenbauer WL: Purification and properties of an extracellular β-glucosidase from the cellulolytic thermophile *Clostridium stercorarium* 380

Buchert J, Puls J, Poutanen K: Comparison of *Pseudomonas fragi* and *Gluconobacter oxydans* for production of xylonic acid from hemicellulose hydrolyzates 367

Doi Y, Tamaki A, Kunioka M, Soga K: Production of copolyesters of 3-hydroxybutyrate and 3-hydroxyvalerate by *Alcaligenes eutrophus* from butyric and pentanoic acids 330

Fujikawa S, Yokota T, Koga K: Immobilization of β-glucosidase in calcium alginate gel using genipin as a new type of cross-linking reagent of natural origin (Short contribution) 440

Galiotou-Panayotou M, Rodis P, Macris BJ, Stathakos D: Purification of a novel enzyme involved in catechin degradation by *Calvatia gigantea* 543

Ghandour W, Hubbard JA, Deistung J, Hughes MN, Poole RK: The uptake of silver ions by *Escherichia coli* K12: toxic effects and interaction with copper ions 559

Giuseppin MLF, van Eijk HMJ, Verduyn C, Bante I, van Dijken JP: Production of catalasa-free alcohol oxidase by *Hansenula polymorpha* 14

Groom CA, Daugulis AJ, White BN: Continuous alpha-amylase production using *Bacillus amyloliquefaciens* adsorbed on an ion exchange resin 8

Hamamci H, Ryu DDY: Effect of oxygen on ethanol fermentation in packed-bed tapered-column reactor 515

Hansson L, Dostálek M: Effect of culture conditions on mycelial growth and production of γ-linolenic acid by the fungus *Mortierella ramanniana* 240

Helle U, Onken U: Continuous microbial leaching of a pyritic concentrate by *Leptospirillum*-like bacteria 553

Höhl U, Upmeier B, Barz W: Growth and nicotinate biotransformation in batch cultured and airlift fermenter grown soybean cell suspension cultures 319

Holst O, Håkanson H, Miyabayashi A, Mattiason B: Monitoring of glucose in fermentation processes using a commercial glucose analyser 32

Hummel W, Schütte H, Kula M-R: D-(−)-Mandelic acid dehydrogenase from *Lactobacillus curvatus* 433

Kalebina TS, Rudenskaya GN, Selyakh IO, Khodova OM, Chestukhina GG, Stepanov VM, Kulaev IS: Serine proteinase from *Bacillus brevis:* lytic action on intact yeast cells 531

Kim DW, Yang JH, Jeong YK: Adsorption of cellulase from *Trichoderma viride* on microcrystalline cellulose 148

Kole MM, Draper I, Gerson DF: Protease production by *Bacillus subtilis* in oxygen-controlled, glucose fed-batch fermentations 404

Koutinas AA, Kanellaki M, Lykourghiotis A, Typas MA, Drainas C: Ethanol production by *Zymomonas mobilis* entrapped in alumina pellets 235

Kumar PKR, Lonsane BK: Immobilized growing cells of *Gibberella fujikuroi* P-3 for production of gibberellic acid and pigment in batch and semi-continuous cultures 537

Lechner M, Märkl H, Götz F: Lipase production of *Staphylococcus carnosus* in a dialysis fermentor 345

Madyastha KM, Murthy NSRK: Transformations of acetates of citronellol, geraniol, and linalool by *Aspergillus niger:* regiospecific hydroxylation of citronellol by a cell-free system 324

Manachini PL, Fortina MG, Parini C: Thermostable alkaline protease produced by *Bacillus thermoruber* — a new species of *Bacillus* 409

Márquez G, Buesa JM, Garciá JL, Barbero JL: Conformational stability of the penicillin G acylase from *Kluyvera citrophila* 144

Matsunaga T, Nakamura N, Tsuzaki N, Takeda H: Selective production of glutamate by an immobilized marine blue-green alga, *Synechococcus* sp. 373

Mizuno S, Yoshikawa N, Seki M, Mikawa T, Imada Y: Microbial production of cis, cis-muconic acid from benzoic acid 20

Náhlík J, Burianec Z: On-line parameter and state estimation of continuous cultivation by extended Kalman filter 128

Nakanishi K, Kondo M, Matsuno R: Repeated batch and continuous syntheses of *N*-(benzyloxycarbonyl)-L-phenylalanyl-L-phenylalanine methyl ester with immobilized thermolysin 229

Nielsen L, Larsson M, Holst O, Mattiasson B: Adsorbents for extractive bioconversion applied to the acetone-butanol fermentation 335

Norin M, Boutelje J, Holmberg E, Hult K: Lipase immobilized by adsorption. Effect of support hydrophobicity on the reaction rate of ester synthesis in cyclohexane 527

Para G, Baratti J: Synthesis of L-dopa by *Escherichia intermedia* cells immobilized in a polyacrylamide gel 222

Patchett RA, Kelly AF, Kroll RG: Use of a microbial fuel cell for the rapid enumeration of bacteria 26

Potvin J, Desrochers M, Arcand Y: Fermentation of kraft black liquor for the production of citric acid by *Candida tropicalis* 350

Poutanen K, Puls J: Characteristics of *Trichoderma reesei* β-xylosidase and its use in the hydrolysis of solubilized xylans 425

Poutanen K, Sundberg M: An acetyl esterase of *Trichoderma reesei* and its role in the hydrolysis of acetyl xylans 419

Renneberg R, Sonomoto K, Katoh S, Tanaka A: Oxygen diffusivity of synthetic gels derived from prepolymers 1

Rho D, Mulchandani A, Luong JHT, LeDuy A: Oxygen requirement in pullulan fermentation 361

Rodríguez H, Volfová O, Klyosov A: Characterization of the cellulase complex from *Cellulomonas* grown on bagasse pith 394

Schwald W, Chan M, Breuil C, Saddler JN: Comparison of HPLC and colorimetric methods for measuring cellulolytic activity 398

Selinger LB, Dawson PSS, Khachatourians GG: Behavior of *Bacillus thuringiensis* var. *kustaki* under continuous phased cultivation in a cyclone fermentor 247
Shin CS, Ahn BW, Lee SH, Kim SU, Bok SH: Liberation of sisomicin from cells by sodium chloride (Short contribution) 37
Sode K, Brodelius P, Meussdoerffer F, Mosbach K. Ernst JF: Continuous production of somatomedin C with immobilized transformed yeast cells 215
Soliveri J, Mendoza A, Arias M-E: Effect of different nutrients on the production of polyene antibiotics PA-5 and PA-7 by *Streptoverticillium* sp 43/16 in chemically defined media (Short contribution) 254
Stutzenberger F: Production and activity of *Thermomonospora curvata* cellulases on protein-extracted lucerne fibers 387
Sweere APJ, Giesselbach J, Barendse R, de Krieger R, Honderd G, Luyben KCAM: Modelling the dymamic behaviour of *Saccharomyces cerevisiae* and its application in control experiments 116
Sweere APJ, Matla YA, Zandvliet J, Luyben KCAM, Kossen NWF: Experimental simulation of glucose fluctuations. The influence of continually changing glucose concentrations on the fed-batch baker's yeast production 109
Tang I-C, Yang S-T, Okos MR: Acetic acid production from whey lactose by the co-culture of *Streptococcus lactis* and *Clostridium formicoaceticum* 138
Totani N, Oba K: A simple method for production of arachidonic acid by *Mortierella alpina* 135
Yi Z-H, Rehm H-J: Formation and degradation of Δ^9-1,18-octadecenedioic acid from oleic acid by *Candida tropicalis* 520
Yu EKC: Novel decaffeination process using cyclodextrins 546
Yu EKC, Aoki H, Misawa M: Specific alpha-cyclodextrin production by a novel thermostable cyclodextrin glycosyltransferase 377

Applied genetics and regulation

Allison DG, Roberts PM: Protoplast formation and reversion in Actinomadurae (Short contribution) 580
Billich A, Keller U, Kleinkauf H, Zocher R: Production of protoplasts from *Fusarium scirpi* by lytic enzymes from *Streptomyces tsusimaensis* 442
Bortol A, Nudel C, Giulietti AM, Spencer JFT, Spencer DM: Industrial yeast strain improvement: construction of strains having the killer character and capable of utilizing starch (Short contribution) 577
Brigidi P, Matteuzzi D, Fava F: Use of protoplast fusion to introduce methionine overproduction into *Saccharomyces cerevisiae* 268
Didier S, Lazzaroni JC, Portalier R: Cell localization of *EcoRI* endonuclease in *Escherichia coli* K-12 (Short contribution) 468
Durrands PK, Cooper RM: Development and analysis of pectic screening media for use in the detection of pectinase mutants 463
Hellebust H, Uhlén M, Enfors S-O: Role of proteases in fermentation of the fused protein staphylococcal protein A-human insulin-like growth factor I in *Staphylococcus aureus* 258
Homolka L, Vyskočil P, Pilát P: Use of protoplasts in the improvement of filamentous fungi. I. Mutagenization of protoplasts of *Oudemansiella mucida* 166
Honda H, Iijima S, Kobayashi T: Cloning and expression in *Saccharomyces cerevisiae* of an endo-β-glucanase gene from a thermophilic cellulolytic anaerobe (Short contribution) 57
Hwang Y-I, Harashima S, Oshima Y: Construction of a promoter-probe vector with the *PHO5* gene encoding repressible acid phosphatase in *Saccharomyces cerevisiae* 155
Iijima S, Mano T, Taniguchi M, Kobayashi T: Immobilization of hybridoma cells with alginate and urethane polymer and improved monoclonal antibody production 572
Kitai K, Kudo T, Nakamura S, Masegi T, Ichikawa Y, Horikoshi K: Extracellular production of human immunoglobulin G Fc region (hIgG-Fc) by *Escherichia coli* 52
Kitamoto Y, Mori N, Yamamoto M, Ohiwa T, Ichikawa Y: A simple method for protoplast formation and improvement of protoplast regeneration from various fungi using an enzyme from *Trichoderma harzianum* 445
Kosugi N, Inoue Y, Rhee H-I, Murata K, Kimura A: Production of *S*-lactoylglutathione by glycerol-adapted *Saccharomyces cerevisiae* and genetically engineered *Escherichia coli* cells 263
Lebrihi A, Lefebvre G, Germain P: A study on the regulation of cephamycin C and expandase biosynthesis by *Streptomyces clavuligerus* in continuous and batch culture 39
Lebrihi A, Lefebvre G, Germain P: Carbon catabolite regulation of cephamycin C and expandase biosynthesis in *Streptomyces clavuligerus* 44
Lotti M, Porro D, Martegani E, Alberghina L: Physiological and genetic modulation of inducible expression of *Escherichia coli* β-galactosidase in *Saccharomyces cerevisiae* 160
Marin-Iniesta F, Nasri M, Dhulster P, Barbotin J-N, Thomas D: Influence of oxygen supply on the stability of recombinant plasmid pTG201 in imobilized *E. coli* cells 455
Morino T, Morita M, Seya K, Sukenaga Y, Kato K, Nakamura T: Construction of a runaway vector und its use for a high-level expression of a cloned human superoxide dismutase gene 170
Mullaney EJ, Punt PJ, Van den Hondel CAMJJ: DNA mediated transformation of *Aspergillus ficuum* 451
Riedel K, Renneberg R, Kleine R, Krüger M, Scheller F: A microbial sensor for peptides 272
Wagner F, Gay G, Debaud JC: Genetical variability of glutamate dehydrogenase activity in monokaryotic and dikaryotic mycelia of the ectomycorrhizal fungus *Hebeloma cylindrosporum* 566
Yu P-L, Limsowtin GKY, Crow VL, Pearce LE: In vivo and in vitro expression of a *Streptococcus lactis* tagatose 1,6-bisphosphate aldolase gene in *Escherichia coli* (Short contribution) 471

Applied microbiology

Ahmed I, Ross RA, Mathur VK, Chesbro WR: Growth rate dependence of solventogenesis and solvents produced by *Clostridium beijerinckii* 182
Alexander MA, Chapman TW, Jeffries TW: Xylose metabolism by *Candida shehatae* in continuous culture 478
Bernhardt G, Distèche A, Jaenicke R, Koch B, Lüdemann H-D, Stetter K-O: Effect of carbon dioxide and hydrostatic pressure on the pH of culture media and the growth of methanogens at elevated temperature 176

Blasig R, Mauersberger S, Riege P, Schunck W-H, Jockisch W, Franke P, Müller H-G: Degradation of long-chain n-alkanes by the yeast *Candida maltosa*. II. Oxidation of n-alkanes and intermediates using microsomal membrane fractions 589
Cwalina B, Weglarz L, Dzierzewicz Z, Wilczok T: Depenence of effectiveness of leaching of metallic sulphides on enzymes involved in inorganic sulphur metabolism in *Thiobacillus ferrooxidans* (Short contribution) 100
Eley JH: The use of HEPES as a buffer for the growth of the cyanobacterium *Anacystis nidulans* 297
Giuseppin MLF, van Eijk HMJ, Bos A, Verduyn C, van Dijken JP: Utilization of methanol by a catalase-negative mutant of *Hansenula polymorpha* 286
Glück M, Lingens F: Heteroxanthinedemethylase, a new enzyme in the degradation of caffeine by *Pseudomonas putida* 59
Gusek TW, Wilson DB, Kinsella JE: Influence of carbon source on production of a heat stable protease from *Thermomonospora fusca* YX 80
Hayashi T, Akiba T, Horikoshi K: Properties of new alkaline maltohexaose-forming amylases 281
Larroche C, Desfarges C, Gros J-B: Optimization of the spore production of *Penicillium roqueforti* in solid substrate fermentation on buckwheat seeds 85
Ligthelm ME, Prior BA, du Preez JC: The oxygen requirements of yeasts for the fermentation of D-xylose and D-glucose to ethanol 63
Ligthelm ME, Prior BA, du Preez JC, Brandt V: An investigation of D-[1-^{13}C] xylose metabolism in *Pichia stipitis* under aerobic and anaerobic conditions 293
Mason JC, Richards M, Zimmermann W, Broda P: Identification of extracellular proteins from actinomycetes responsible for the solubilisation of lignocellulose 276
Mitchell DA, Doelle HW, Greenfield PF: Agar plate growth studies of *Rhizopus oligosporus* and *Aspergillus oryzae* to determine their suitability for solid-state fermentation 598
Pankova LM, Shvinka JE, Beker MJ: Regulation of intracellular H^+ balance in *Zymomonas mobilis* 113 during the shift from anaerobic to aerobic conditions 583
Peleg Y, Rahamim E, Kessel M, Goldberg I: Malic acid accumulation by *Aspergillus flavus*. II. Crystals and hair-like processes formed by *A. flavus* in a L-malic acid production medium 76
Peleg Y, Stieglitz B, Goldberg I: Malic acid accumulation by *Aspergillus flavus*. I. Biochemical aspects of acid biosynthesis 69
Pines O, Shoham Y, Rosenberg E, Gutnick D: Unmasking of surface components by removal of cell-associated emulsan from *Acinetobacter* Sp. RAG-1 93
Scheer E, Eggeling L, Sahm H: Improved D,L-α-hydroxybutyrate conversion to L-isoleucine with *Corynebacterium glutamicum* mutants with increased D-lactate utilization 474
Spicher G, Nierle W: Proteolytic activity of sourdough bacteria 487
Suzuki T, Yamane T, Shimizu S: Effect of ammonium feeding on production of thiostrepton by fed-batch culture 188

Environmental microbiology

Ahlf W: Recovery of metals from acid waste water by *Cyanidium caldarium* (Short contribution) 512
Ajisebutu SO: Effects of sodium chloride on biodegradation of crude oils by two species of *Aeromonas* 203
Belsare DK, Prasad DY: Decolorization of effluent from the bagasse-based pulp mills by white-rot fungus, *Schizophyllum commune* 301
Claus H, Filip Z: Behaviour of phenoloxidases in the presence of clays and other soil-related adsorbents 506
Kantelinen A, Waldner R, Niku-Paavola M-L, Leisola MSA: Comparison of two lignin-degrading fungi: *Phlebia radiata* and *Phanerochaete chrysosporium* 193
Karlsson S, Banhidi ZG, Albertsson A-C: Identification and characterization of alkali-tolerant clostridia isolated from biodeteriorated casein-containing building materials 305
Koster IW, Koomen E: Ammonia inhibition of the maximum growth rate (μ_m) of hydrogenotrophic methanogens at various pH-levels and temperatures 500
Mata-Alvarez J, Llabrés P: A kinetic study of the anaerobic digestion of piggery waste using down-flow stationary fixed film reactors 311
Oltmanns RH, Rast HG, Reineke W: Degradation of 1,4-dichlorobenzene by enriched and constructed bacteria 609
Omar SH, Rehm H-J: Degradation of n-alkanes by *Candida parapsilosis* and *Penicillium frequentans* immobilized on granular clay and aquifer sand 103
Riedel K, Renneberg R, Kühn M, Scheller F: A fast estimation of biochemical oxygen demand using microbial sensors (Short contribution) 316
Taeger K, Knackmuss H-J, Schmidt E: Biodegradability of mixtures of chloro- and methylsubstituted aromatics: Simultaneous degradation of 3-chlorobenzoate and 3-methylbenzoate 603
Thierry A, Chicheportiche R: Use of ATP bioluminescence measurements for the estimation of biomass during biological humification 199
Van der Hoek JP, Latour PJM, Klapwijk A: Effect of hydraulic residence time on microbial sulfide production in an upflow sludge blanket denitrification reactor fed with methanol 493

Rapid communication

Pertot E, Rozman D, Miličič S, Sočič H: Morphological differentiation of immobilized *Claviceps paspali* mycelium during semi-continuous cultivation 209

Author index of volume 28

Ahlf W 512
Ahmed I 182
Ahn BW 37
Ajisebutu SO 203
Akiba T 281
Alberghina L 160
Albertsson A-C 305
Alexander MA 478
Allison DG 580
Andorn N 356
Aoki H 377
Aono R 414
Arcand Y 350
Arias M-E 254
Banhidi ZG 305
Bante I 14
Baratti J 222
Barbero JL 144
Barbotin J-N 455
Barendse R 116
Barz W 319
Beker MJ 583
Belsare DK 301
Bernhardt G 176
Bibal B 340